

2. ITW and Miller Electric object to Thermal Dynamics' Interrogatories as overly broad and unduly burdensome to the extent they seek to impose upon ITW or Miller Electric duties and/or responsibilities greater than those imposed by the Federal Rules of Civil Procedure, the Local Rules of the District of the Eastern District of Wisconsin, or applicable case law.

3. ITW and Miller Electric's responses to Thermal Dynamics' Interrogatories are made to the best of their present knowledge, information, and belief based upon information currently available to ITW and Miller Electric. These responses are at all times subject to such elaborations, supplementation, and to such additional or different information as discovery or further investigation may produce. In particular, ITW and Miller Electric object to Thermal Dynamics' Interrogatories to the extent they seek to limit the information that ITW or Miller Electric may rely upon at trial in this matter. ITW and Miller Electric's fact investigation and trial preparations are continuing, and ITW and Miller Electric reserve the right to provide and rely on additional documents and things in response to these Interrogatories. ITW and Miller Electric further reserve the right to put forth all evidentiary objections with respect to any response they provide.

4. By this Response, ITW and Miller Electric preserve, and do not waive, any objections or other challenges as to the competence, relevance, materiality, privilege or admissibility of evidence as to any documents or information identified or produced herein, whether in this or any subsequent proceeding or trial in this or any other action.

5. ITW and Miller Electric object to each of Thermal Dynamics' Interrogatories to the extent that they call for documents or information outside the scope of ITW or Miller Electric's knowledge, possession, custody or control.

SPECIFIC OBJECTIONS AND ANSWERS TO INTERROGATORIES

Without waiving or limiting in any manner any of the foregoing General Objections, but rather incorporating them into each of the following responses, ITW and Miller Electric respond to the specific interrogatories contained in Thermal Dynamics' Sixth Set of Interrogatories as follows:

Interrogatory No. 22:

Identify each claim of U.S. Patent No. 6,815,639 ("the '639 patent") which plaintiffs contend is infringed by Thermal Dynamics.

Response to Interrogatory No. 22

Subject to the stated General Objections and further investigation, Plaintiffs presently assert that Thermal Dynamics infringes claims 1, 2, 3, 4, 6, 8 and 9 of the '639 Patent. By so responding, Plaintiffs do not admit that any claim of the '639 Patent is not infringed by Thermal Dynamics.

Interrogatory No. 23:

For each claim identified in response to Interrogatory No. 22, identify which Thermal Dynamics products infringe that claim, and identify all facts known to plaintiffs, to the best of their knowledge, information, and belief, formed after an inquiry reasonable under the circumstances, that support plaintiff's belief that the identified claims are infringed by the products reference in paragraph 38 of the Third Amended Complaint, and for each claim, further identify the evidentiary support (including all documents) for any facts identified or describe what evidentiary support (including all documents) you contend will be located after you have had a reasonable opportunity for further investigation or discovery.

Response to Interrogatory No. 23:

Plaintiffs object to this Interrogatory as premature. Discovery is not yet complete. Plaintiffs expressly reserve the right to supplement this Response after further discovery and an opportunity to review the full nature of Thermal Dynamics' infringing activity. Plaintiffs also object to this Interrogatory to the extent it seeks information duplicative of the information sought by Interrogatory No. 24.

Subject to the stated General and Specific objections, Plaintiffs respond that each of the claims identified in response to Interrogatory No. 22 is infringed by the CutMaster™ 38 product and any CutMaster™38 product sold under a different trade name. Plaintiffs also respond as set forth in Table A in Appendix A. Subject to supplementation as discovery continues, the CutMaster™38 is evidence of Thermal Dynamics' infringement. Further answering, evidence of Thermal Dynamics' infringement can be located at TD 6452-6531, 6491-6494, 6499-6507, 7012, 7073-7074, 9324-9340, 9381, 12724-12730, 12738-12789, 26251-26390, 29516-29517, 29519-29521, 29536-29538, 31750-31764, 31768, 31784-31802, and JR 916-918.

Interrogatory No. 24:

For each claim identified as infringed by any product referenced in Count III, Paragraphs 37-42 of the Third Amended Complaint, separately set forth a 4-column chart, identifying: in the first column, the language of each claim infringed; in the second column, your interpretation of the terms of the claim language; in the third column, any support for your claim interpretation found in the claims, the specification or the prosecution history; and in the fourth column, the facts (known or believed to be proved up after a reasonable opportunity for further investigation or discovery) showing that the claim elements are met.

Response to Interrogatory No. 24:

Plaintiffs object to this Interrogatory as premature because the Court has expressly provided for claim construction positions to be exchanged between the parties in connection with the *Markman* proceedings set forth in the Court's Scheduling Order.

Subject to and without waiving their General and Specific Objections, Plaintiffs set forth their response in Table A, attached in Appendix A.

Interrogatory No. 25:

For each claim of the '639 patent which you contend Thermal Dynamics induces or contributes to the infringement by third party(ies), separately set forth a 5-column chart, identifying: in the first column, the language of each claim infringed; in the second column, your interpretation of the terms of the claim language; in the third column, any support for your claim interpretation found in the claims, the specification or the prosecution history; in the fourth column, the facts (known or believed to be proved up after a reasonable opportunity for further investigation or

discovery) showing that the claim elements are met by third party infringer, and in the fifth column, the acts of Thermal Dynamics that induce or contribute to the infringement by third party(ies).

Response to Interrogatory No. 25:

Plaintiffs object to this Interrogatory as premature because the Court has expressly provided for claim construction positions to be exchanged between the parties in connection with the *Markman* proceedings set forth in the Court's Scheduling Order. Plaintiffs also object to this Interrogatory to the extent it seeks information duplicative of the information sought by Interrogatory No. 24.

Subject to the stated General and Specific Objections, ITW and Miller Electric incorporate by reference their response to Interrogatory No. 24. ITW and Miller Electric respond further that Thermal Dynamics induces infringement by intentionally aiding and abetting the infringing use of the Cutmaster™ 38. Thermal Dynamics contributes to direct infringement by selling the CutMaster™ 38 product, which is a non-staple product and forms at least a substantial part of all asserted claims. Further answering, evidence of Thermal Dynamics' induced and contributory infringement can be located at TD 6452-6531, 6491-6494, 6499-6507, 7012, 7073-7074, 9324-9340, 9381, 12724-12730, 12738-12789, 26251-26390, 29516-29517, 29519-29521, 29536-29538, 31750-31764, 31768, and 31784-31802.

Interrogatory No. 26:

Identify each claim of U.S. Patent No. 6,849,827 ("the '827 patent") which ITW contends is infringed by Thermal Dynamics.

Response to Interrogatory No. 26:

Subject to the stated General Objections and further investigation, Plaintiffs presently assert that Thermal Dynamics infringes claims 1, 2, 4, 5, 6, 7, 8, 10, 11, 13, 14, 15, 16, 17, 18,

19, 20, 21, 23, 24, 25, 26, 27 and 30 of the '827 Patent. By so responding, Plaintiffs do not admit that any claim of the '827 Patent is not infringed by Thermal Dynamics.

Interrogatory No. 27:

For each claim identified in response to Interrogatory No. 26, identify which Thermal Dynamics products infringed the claims, and identify all facts known to plaintiffs, to the best of their knowledge, information and belief, formed after an inquiry reasonable under the circumstances that support plaintiff's belief that the identified claims are infringed by the products referenced in paragraph 38 (sic) of the Third Amended Complaint, and for each claim, further identify the evidentiary support (including all documents) for any facts identified or describe what evidentiary support (including all documents) you contend will be located after you have had a reasonable opportunity for further investigation or discovery.

Response to Interrogatory No. 27:

Plaintiffs object to this Interrogatory as premature. Discovery is not yet complete. Plaintiffs expressly reserve the right to supplement this Response after further discovery and an opportunity to review the full nature of Thermal Dynamics' infringing activity. Plaintiffs also object to this Interrogatory to the extent it seeks information duplicative of the information sought by Interrogatory No. 28.

Subject to the stated General and Specific objections, Plaintiffs respond that each of the claims identified in response to Interrogatory No. 26 is infringed by the CutMaster™ 38 product and any CutMaster™38 product sold under a different trade name. Plaintiffs also respond as set forth in Table B in Appendix A. Subject to supplementation as discovery continues, the CutMaster™38 is evidence of Thermal Dynamics' infringement. Further answering, evidence of Thermal Dynamics' infringement can be located at TD 6452-6531, 6491-6494, 6499-6507, 7012, 7073-7074, 9324-9340, 9381, 12724-12730, 12738-12789, 26251-26390, 29516-29517, 29519-29521, 29536-29538, 31750-31764, 31768, 31784-31802, and JR 916-918.

Interrogatory No. 28:

For each claim identified as infringed by any product referenced in Count IV, Paragraphs 43, 38 (sic), 39 (sic), 40 (sic), 41 (sic), and 42 (sic) of the Third Amended Complaint, separately set forth a 4-column chart, identifying: in the first column, the language of each claim infringed; in the second column, your interpretation of the terms of the claim language; in the third column, any support for your claim interpretation found in the claims, the specification or the prosecution history; and in the fourth column, the facts (known or believed to be proved up after a reasonable opportunity for further investigation or discovery) showing that the claim elements are met.

Response to Interrogatory No. 28:

Plaintiffs object to this Interrogatory as premature because the Court has expressly provided for claim construction positions to be exchanged between the parties in connection with the *Markman* proceedings set forth in the Court's Scheduling Order.

Subject to and without waiving their General and Specific Objections, Plaintiffs set forth their response in Table B, attached in Appendix A.

Interrogatory No. 29:

For each claim of the '827 patent which you contend Thermal Dynamics induces or contributes to the infringement by third party(ies), separately set forth a 5-column chart, identifying: in the first column, the language of each claim infringed; in the second column, your interpretation of the terms of the claim language; in the third column, any support for your claim interpretation found in the claims, the specification or the prosecution history; in the fourth column, the facts (known or believed to be proved up after a reasonable opportunity for further investigation or discovery) showing that the claim elements are met by third party infringer, and in the fifth column, the acts of Thermal Dynamics that induce or contribute to the infringement by third party(ies).

Response to Interrogatory No. 29:

Plaintiffs object to this Interrogatory as premature because the Court has expressly provided for claim construction positions to be exchanged between the parties in connection with the *Markman* proceedings set forth in the Court's Scheduling Order. Plaintiffs also object to this Interrogatory to the extent it seeks information duplicative of the information sought by Interrogatory No. 24.

Subject to the stated General and Specific Objections, ITW and Miller Electric incorporate by reference their response to Interrogatory No. 24. ITW and Miller Electric further respond that Thermal Dynamics induces infringement by intentionally aiding and abetting the infringing use of the Cutmaster™ 38. Thermal Dynamics contributes to direct infringement by selling the CutMaster™ 38 product, which is a non-staple product and forms at least a substantial part of all asserted claims. Further answering, evidence of Thermal Dynamics' induced and contributory infringement can be located at TD 6452-6531, 6491-6494, 6499-6507, 7012, 7073-7074, 9324-9340, 9381, 12724-12730, 12738-12789, 26251-26390, 29516-29517, 29519-29521, 29536-29538, 31750-31764, 31768, and 31784-31802.

Interrogatory No. 30:

For each of the allegedly infringed claims of the '827 patent, identify;

- a) The dates of conception and first reduction to practice of the invention of that claim;
- b) The earliest uses (public and private) of the invention of that claim;
- c) The earliest offer for sale of any embodiment of the invention of that claim;
- d) The earliest publication of anything that refers or relates to the invention;
- e) All documents that refer or relate to the sale of any invention covered by that claim;
- f) The names and addresses of all persons with any knowledge of such conception, reduction to practice, use, offer for sale, or publication of the invention of that claim, including but not limited to the identification of all individuals who built, in whole or in part, the first embodiment (i.e., the first reduction to practice) of the invention; and
- g) The identification of all documents related to such conception, reduction to practice, use, offer for sale, or publication.

Response to Interrogatory No. 30:

ITW and Miller Electric object to this Interrogatory as multi-part and containing multiple Interrogatories in violation of the Local Rules of this Court.

Subject to and without waiving their General and Specific Objections, ITW and Miller Electric respond as follows:

a) Subject to further investigation, the inventions of the '407 patent were conceived by March 3, 1992. Further responding, the inventions of the '407 patent were reduced to practice by August 1993.

b) ITW and Miller Electric object to this sub-part as vague and ambiguous because the term "private use" is undefined. ITW and Miller Electric are still investigating to ascertain the precise dates requested. As indicated above, James Thommes reduced his invention to practice by August 1993. Subject to further investigation, and assuming ITW and Miller Electric understand Thermal Dynamics' use of the word "private", James Thommes "privately used" the OmniLine 300 SE on October 24, 1995. Subject to further investigation, the OmniLine 300 SE was first publicly used shortly after October 24, 1995. Further answering, documents supporting Plaintiffs' response can be located at ME 100836.

c) Subject to further investigation, the earliest sale of any embodiment of the inventions of the '407 patent was on October 24, 1995. While investigation is ongoing, ITW and Miller Electric have been unable to ascertain the exact date of the first offer for sale of the inventions of the '407 patent, but ITW and Miller Electric understand that this first offer for sale would have occurred shortly prior to the first sale on October 24, 1995.

d) ITW and Miller Electric specifically object to this Interrogatory as vague and ambiguous because the meaning of the phrase "publication of anything that refers or relates to the invention" is unclear. ITW and Miller Electric also specifically object to this Interrogatory as unduly burdensome because the phrase "anything that refers or relates to the invention," to the extent the meaning of this phrase can be ascertained, has an unreasonable and overly broad

scope. ITW and Miller Electric cited references to the United States Patent & Trademark Office in connection with the prosecution of the '407 patent. The publication dates of such references can be derived from the face of the '407 patent which is attached as an exhibit to Plaintiffs' Complaint.

e) Documents from which Thermal Dynamics can derive the requested information may be located at JT 22, ME 030618, ME 100836-100881, and ME 187545-187990.

f) Subject to further investigation, James Thommes, George Martin, Tom Rankin, Wade Chase, David Aguirre, Michael Viskander, Brian Butler, Marvin Schiedermayer, Todd Batzler, Michael Madsen, and James Ulrich may have knowledge regarding at least some of the subject matter identified in this sub-part.

g) Subject to further investigation, in addition to the documents identified above, Plaintiffs incorporate by reference pertinent information contained in the September 16, 2004 letter from James Shimota to Steve Garlock. Further answering, the conception and reduction to practice dates identified herein were derived from the Invention Disclosure Record which can be located at Entry No. 339 on Plaintiffs' Privilege Log.

Interrogatory No. 31:

Provide with particularity, the factual and legal bases for plaintiffs' contentions as to the amount of damages due to plaintiffs if Thermal Dynamics is found to infringe one or both of the patents-in-suit, including, but not limited to the proper royalty rate, amount of lost profits due, and increased damages for willfulness; further identify the evidentiary support (including all documents and identification of witnesses) for any facts identified.

Response to Interrogatory No. 31:

Plaintiffs object to this Interrogatory as premature. Plaintiffs reserve the right to supplement their response after further discovery is complete. In particular, Thermal Dynamics has not completed producing its financial information to Plaintiffs. To the extent that Thermal

Dynamics makes a responsive and complete production of damages-related documents, Plaintiffs reserve the right to supplement this interrogatory based upon information derived from such documents.

Plaintiffs further object to this Interrogatory as attempting to circumvent the schedule ordered by the Court for disclosure of expert opinions. At this time, Plaintiffs are under no obligation to disclose the identity of any testifying expert or their opinions.

Subject to the stated General and Specific Objections, Plaintiffs presently assert that they are entitled to damages adequate to compensate them for the infringement by Thermal Dynamics. In no event is this damages amount less than a reasonable royalty for use made by Thermal Dynamics of Plaintiffs' patented inventions, together with interest and costs as fixed by the Court.

In particular, Plaintiffs are entitled to damages for the profits that they lost due to Thermal Dynamics' infringement. Upon information and belief, discovery will show a demand for the patented plasma cutters. Upon information and belief, discovery will also show the absence of acceptable non-infringing substitutes. In particular, none of the Hypertherm Powermax 1000, 1250, and 1650; the Hypertherm 380; or the Hobart 625 are acceptable non-infringing alternatives. Further, upon information and belief, discovery will show that Miller Electric had and has the manufacturing and marketing capability to exploit the demand for plasma cutters if Thermal Dynamics was not selling the infringing CutMaster™ 38 products. Lastly, after discovery of all financial information is complete, Plaintiffs will demonstrate the profits they would have made but for Thermal Dynamics' infringement.

At a minimum, Plaintiffs are entitled to what they would have accepted from Thermal Dynamics for a reasonable royalty for a license to use Plaintiffs' proprietary technology.

Interrogatory No. 32:

Provide, with particularity, plaintiffs' contention of the level of ordinary skill in the art with respect to one or both of the patents-in-suit, including but not limited to plaintiffs' contentions as to education level, training level, and experience level for the person of ordinary skill in the art, and further identify the evidentiary support (including all documents and identification of witnesses) for each contention.

Response to Interrogatory No. 32:

Plaintiffs contend that a person of ordinary skill in the art with respect to the patents-in-suit would have: (i) at least a bachelors degree in electrical engineering and at least three years of work experience with welding, cutting or heating applications with an emphasis on power electronics or (ii) at least 10 years experience working with welding, cutting or heating applications with an emphasis on power electronics.

Interrogatory No. 33:

For each of the patents-in-suit, state with particularity the factual and legal basis for plaintiffs allegation of willful infringement, and further identify the evidentiary support (including all documents and identification of witnesses) or any facts identified that supports plaintiffs' answer to this interrogatory.

Response to Interrogatory No. 33:

Plaintiffs object to this Interrogatory as premature. Plaintiffs reserve the right to supplement this response after further discovery has occurred.

Subject to the stated General and Specific Objections, Plaintiffs respond that Thermal Dynamics was aware of the allowed claims of the patents-in-suit well before the patents-in-suit issued. Plaintiffs repeatedly informed Thermal Dynamics that, to the extent that it continued to market the CutMaster™38, Plaintiffs would sue Thermal Dynamics for infringement of the patents-in-suit. Through notification of Plaintiffs, Thermal Dynamics was aware of the patents-in-suit on the dates those patents issued.

Given Thermal Dynamics' knowledge of the patents-in-suit, Thermal Dynamics had an affirmative duty to exercise due care. Upon information and belief, Thermal Dynamics failed to exercise the care that was due. In particular, Thermal Dynamics has failed to disclose that it relied on any competent opinions of counsel and has continued to market the CutMaster™ 38 despite clear infringement of the patents-in-suit.

Discovery is only beginning in this case, and ITW and Miller Electric will supplement this response with any further evidence that demonstrates that Thermal Dynamics has failed to exercise due care after becoming aware of the patents-in-suit.

Interrogatory No. 34:

Do any license agreements exist for either or both of the patents-in-suit? If your answer is anything but an unqualified "no" for each such license agreement please state (a) whether the agreement is written or oral; (b) the parties to the agreement; (c) the royalty rate; (d) the effective date and/or termination date; (e) the persons with knowledge about the terms of the agreement; and (f) all terms of the agreement.

Response to Interrogatory No. 34:

Subject to the stated General Objections, Plaintiffs respond that license agreements do exist for both U.S. Patent No. 6,815,639 ("the '639 patent") and U.S. Patent No. 6,849,827 ("the '827 patent"). The '639 and '827 patents have been exclusively licensed by ITW to Miller Electric. To the extent that this Interrogatory requests information regarding sub-licensing, the '639 and '827 patents have been sub-licensed to Hypertherm, Inc. ("Hypertherm").

(a) The exclusive license agreement between ITW and Miller Electric is in writing ("ITW-Miller License"). A copy of the ITW-Miller License has been provided at ME141592–ME141592. The sub-license granted to Hypertherm is also in writing ("Hypertherm Sub-License"). A copy of the Hypertherm Sublicense has been provided at ME099121–ME099144.

(b) The parties to the ITW-Miller License are ITW and Miller Electric. The parties to the Hypertherm Sub-License are ITW, Miller Electric and Hypertherm.

(c) Information concerning the royalty rates for each of the ITW-Miller License and the Hypertherm Sub-License can be determined from the documents themselves.

(d) Information concerning the effective date and/or termination date for each of the ITW-Miller License and the Hypertherm Sub-License can be determined from the documents themselves.

(e) John H. Pilarski and Mark W. Croll have knowledge of the ITW-Miller License. John H. Pilarski, James Totzke and executives of Hypertherm have knowledge of the Hypertherm Sub-License.

(f) Plaintiffs have produced the ITW-Miller License at ME141592-ME141592. Pursuant to Fed. R. Civ. P. 33(d), the terms of this agreement may be determined by Thermal Dynamics. Plaintiffs have also produced the Hypertherm Sub-License. Pursuant to Fed. R. Civ. P. 33(d), the terms of this agreement may be determined by Thermal Dynamics.

Interrogatory No. 35:

For every product covered by any claim in the '639 patent identify the date of the first offer for sale and the first sale for such product and identify by Bates No. all documents used to determine the dates.

Response to Interrogatory No. 35:

Plaintiffs object to this Interrogatory as overly broad, unduly burdensome, and calling for irrelevant information. More specifically, Plaintiffs' Interrogatory calls for information concerning products that are not at issue in this lawsuit. Plaintiffs further object to this Interrogatory to the extent that it may call for privileged information. Plaintiffs further object to this Interrogatory insofar as it calls for information pertaining to claims that are not asserted in

this litigation.

Subject to the preceding objections, Plaintiffs respond with the following information that is reasonably available to Plaintiffs. For Plaintiffs' products, the date of the first offer for sale and first sale is generally the same. The following chart provides the information requested.

Documents responsive to the information requested can be located at ME 100015-100525.

<u>Product</u>	<u>Date</u>
Maxstar 200 SD 120-460 VAC	September 2000
Maxstar 200 DX 120-460VAC	September 2000
Maxstar 200 LX 120-460VAC	September 2000
Maxstar 200 SD CE 120-460VAC	October 2000
Maxstar 200 DX CE 120-460VAC	October 2000
Maxstar 200 LX CE 120-460VAC	October 2000
Maxstar 200 STR 120-460VAC	April 2001
Maxstar 200 STR CE 120-460VAC	June 2001
ALT-304	August 2001
Rack, Maxstar 200 STR	September 2002
Dynasty 200 SD 120-460VAC	December 2002
Dynasty 200 DX 120-460VAC	December 2002
Dynasty 200 SD CE 120-460VAC	May 2003
Dynasty 200 DX CE 120-460VAC	May 2003
Maxstar 150 S	May 2003
Maxstar 150 STL	May 2003
Maxstar 200 STR CE	November 2003

Maxstar 150 STH	January 2004
XMT-350 CC/CV	February 2004
Maxstar 150 STH	March 2004
XMT-350 VS	June 2004

Interrogatory No. 36:

For every product covered by any claim in the '827 patent identify the date of the first offer for sale and the first sale for such product and identify by Bates No. all documents used to determine the dates.

Response to Interrogatory No. 36:

Plaintiffs object to this Interrogatory as overly broad, unduly burdensome, and calling for irrelevant information. More specifically, Plaintiffs' Interrogatory calls for information concerning products that are not at issue in this lawsuit. Plaintiffs further object to this Interrogatory to the extent that it may call for privileged information. Plaintiffs further object to this Interrogatory insofar as it calls for information pertaining to claims that are not asserted in this litigation.

Subject to the preceding objections, Plaintiffs respond with the following information that is reasonably available to Plaintiffs. For Plaintiffs' products, the date of the first offer for sale and first sale is generally the same. The following chart provides the information requested. Documents responsive to the information requested can be located at ME 100015-100525 & 100836-100881.

<u>Product</u>	<u>Date</u>
PowCon 300 SE	October 1995
Spectrum 2050	August 1998
Spectrum 2050 (modified in accordance with the teachings of the '014 patent)	On or very nearly after December 22, 1998
Maxstar 200 SD 120-460 VAC	September 2000
Maxstar 200 DX 120-460VAC	September 2000
Maxstar 200 LX 120-460VAC	September 2000
Maxstar 200 SD CE 120-460VAC	October 2000
Maxstar 200 DX CE 120-460VAC	October 2000
Maxstar 200 LX CE 120-460VAC	October 2000
Maxstar 200 STR 120-460VAC	April 2001
Maxstar 200 STR CE 120-460VAC	June 2001
ALT-304	August 2001
Rack, Maxstar 200 STR	September 2002
Dynasty 200 SD 120-460VAC	December 2002
Dynasty 200 DX 120-460VAC	December 2002
Dynasty 200 SD CE 120-460VAC	May 2003
Dynasty 200 DX CE 120-460VAC	May 2003
Maxstar 150 S	May 2003
Maxstar 150 STL	May 2003
Maxstar 200 STR CE	November 2003
Maxstar 150 STH	January 2004
XMT-350 CC/CV	February 2004

Maxstar 150 STH	March 2004
XMT-350 VS	June 2004

Interrogatory No. 37:

If you contend that the specification of the '827 patent enables one of ordinary skill in the art to practice power factor correction in a power supply, including but not limited to a power supply for welding, cutting or heating; identify the following and identify and explain the source of the facts for your answers:

- (a) Identify, by model number(s), the Unitrode chip(s) that is/are used with the preferred embodiment shown in the '827 specification, and explain why the number was not disclosed in the specification.
- (b) Identify the inputs and outputs that go into and out of the above identified chip(s), and identify where the inputs come from and the outputs go to.
- (c) Identify the source of the "average current flow", as described in the '407 patent, for the chip(s) input and which part of the chip(s) the "average current flow" is fed into, and identify all drawings, schematics or other representations of that circuit and the chip(s).
- (d) How does the chip(s) affect power factor in the commercial embodiments of the power supply and how much does the chip(s) improve the power factor correction in the preferred embodiment?
- (e) When did Powcon, Miller or ITW first build a working prototype of a power supply that Plaintiffs contend is covered by one or more claims of the '827 patent?
- (f) When did Powcon, Miller or ITW first build a power supply that had a Unitrode power factor correction chip(s) in it, and identify all documents, including schematics or blue prints, associated with the power supply?
- (g) Who at Powcon, Miller or ITW was involved in the first building of a power supply with a Unitrode power factor correction chip(s) in it?
- (h) Do you contend that the '827 is a constructive reduction to practice of a power supply with power factor correction? If not, identify the date of the reduction to practice, describe in detail the circuit, and identify all documents associated with the circuit, including but not limited to blueprints.

Response to Interrogatory No. 37:

Plaintiffs object to multi-part Interrogatory 37 to the extent it contains multiple Interrogatories in violation of the Local Rules of this Court. Plaintiffs contend that Interrogatory 37 contains not less than three (3) separate interrogatories.

Plaintiffs object to Interrogatory 37 as overly broad, unduly burdensome, and unlikely to lead to the discovery of admissible evidence. Plaintiffs further object to Interrogatory 37 insofar as it incorrectly suggests that the '827 patent covers power supplies for any application, rather than a power supply for welding, cutting, or heating as claimed by the '407 patent. Subject to the stated Specific and General Objections, Plaintiffs answer as follows:

(a) Plaintiffs object to subparagraph (a) as vague and ambiguous. No particular Unitrode power factor correction chip model number is expressly disclosed in the specification of the '827 patent. One of ordinary skill in the art would recognize that one or more of the Unitrode power factor correction chips available in November 1994 could be used in the preferred embodiment disclosed in the '827 patent specification, including at least the Unitrode UC 3854 power factor correction chip (discussed further below). To the extent Plaintiffs learn of other power factor correction chips that would have been known to one of ordinary skill in the art in November 1994, Plaintiffs will supplement this response.

(b) Plaintiffs object to subpart (b) as erroneously assuming that a particular Unitrode chip was omitted from the '827 patent specification. Further answering, as shown in Figure 3 of the '827 patent, the IGBT driver 301 controls the duty cycle of the switch IGBT1, and in one embodiment a Unitrode power factor correction chip is used as part of the IGBT driver. IGBT driver 301 receives feedback signals indicative of the output voltage and the input current. The inputs to the IGBT driver shown in Figure 3 include a feedback signal from shunt S1 that is the current flowing in the positive and negative buses, a feedback output voltage signal from the DC

voltage link nodes, a dc voltage control signal from the auxillary power controller 105, and a feedback input voltage signal from the input rectifier. The output of the IGBT driver 301 shown in Figure 3 is the control input to the base of drive switch IGBT1. The inputs and outputs of a particular Unitrode power factor correction chip can be obtained from a Unitrode power factor correction chip specification sheet and application notes. For the Unitrode UC 3854 chip, the specification sheet and application notes can be located at ME 35934-35938, 35876-35878, 35862-35866, 35463-35482, and 188487-188500. One of ordinary skill in the art would recognize that the inputs and outputs may be scaled as appropriate.

(c) Plaintiffs object to subpart (c) as erroneously assuming that there is only one input to the Unitrode power factor correction chip taught in the '827 patent. The source of the current signal disclosed in the preferred embodiment of the '827 patent is shunt S1. Shunt S1 is shown in Figures 1 and 3 and described in the specification. The Unitrode power factor correction chip inputs would be shown on the Unitrode power factor correction chip specification sheet, and one of ordinary skill in the art would recognize which inputs of the Unitrode chip would be used for the feedback average current input. For example, with respect to the Unitrode UC 3854, when using average current mode control, the current signal from the shunt (*e.g.*, S1) is an input to the UC 3854 chip at the i_{sense} pin. The current signal can come from either the positive or negative output of the input rectifier. For the PowCon 300 SE, the current signal came from the negative lead. Further information regarding the current signal and the average current mode control for the Unitrode UC 3854 is set forth in its Specification Sheet (ME 188487-188500) and the Application Notes identified above.

(d) Plaintiffs object to subpart (d) as vague and ambiguous insofar as it assumes that all of Plaintiffs' products are identical. In Miller Electric AutoLine™ products, power factor

correction chips improve power factor by actively matching, as much as practical, the phase and shape of the current signal to the phase and shape of the input voltage signal. In the preferred embodiment of the '827 patent, the power factor of a single phase input will typically be improved from about .6-.7 to about .99.

(e) James Thommes first built a working prototype of his patented invention(s) by August 1993. Plaintiffs derived such information from James Thommes' Invention Disclosure Record which can be located at Entry No. 339 on Plaintiffs' Privilege Log. Subject to further investigation, ME 30860-30872, 33600, 33594-33608, 33612, 33615-33621, 33625, 33628-33641 support Plaintiffs' response to this subpart. Additionally, the '827 patent and the deposition testimony of James Thommes support Plaintiffs' response.

(f) James Thommes first built a working prototype of his patented invention(s) that had Unitrode power factor correction chips in it by August 1993. Plaintiffs derived such information from James Thommes' Invention Disclosure Record which can be located at Entry No. 339 on Plaintiffs' Privilege Log. Subject to further investigation, ME 30860-30872, 33600, 33594-33608, 33612, 33615-33621, 33625, 33628-33641 support Plaintiffs' response to this subpart. Additionally, the '407 patent and the deposition testimony of James Thommes support Plaintiffs' response.

In particular, ME 4371, 33770, and 187838 are different versions of the PowCon 300SE Boost IGBT board schematic which included the Unitrode UC 3854 chip. Pursuant to Federal Rule 33(d), Thermal Dynamics can ascertain the wiring of the Unitrode power factor correction chip in board from the schematic.

(g) Plaintiffs object to the term "was involved" as vague and ambiguous. Further answering, subject to continued investigation, James Thommes, George Martin, Tom Rankin,

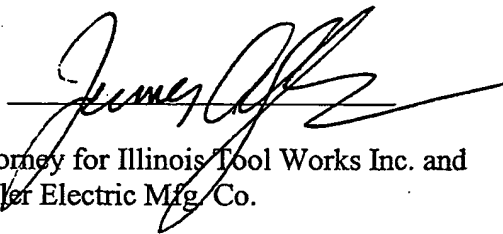
Wade Chase, David Aguirre, Michael Vikander, and Brian Butler each had a role in the development of the prototype which ultimately resulted in the PowCon 300SE commercial product.

(h) Plaintiffs object to subpart (h) as it incorrectly suggests that the '407 patent covers power supplies for any application, rather than a power supply for welding, cutting, or heating as claimed by the '827 patent. Further answering, yes.

DATED: April 11, 2005

Gregory B. Conway
LIEBMAN, CONWAY, OLEJNICZAK
& JERRY, S.C.
231 South Adams Street
P.O. Box 23200
Green Bay, WI 54305-3200
(920) 437-0476

Christian Chadd Taylor
William E. Devitt
James A. Shimota
KIRKLAND & ELLIS
200 E. Randolph Drive
Chicago, IL 60601
(312) 861-2000

By: 
Attorney for Illinois Tool Works Inc. and
Miller Electric Mfg. Co.

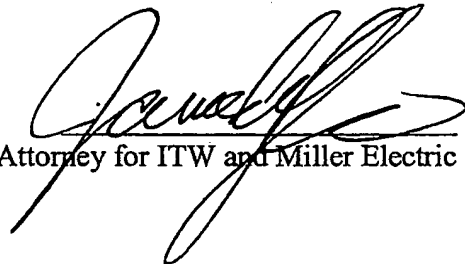
CERTIFICATE OF SERVICE

This is to certify that a true and accurate copy of ITW AND MILLER ELECTRIC'S RESPONSES AND OBJECTIONS TO THERMAL DYNAMICS' EIGHTH SET OF INTERROGATORIES was served on the following individuals via Facsimile and U.S. Mail on the 11th of April, 2005.

Bruce A. Olson
Davis & Kuelthau, s.c.
200 South Washington Street
P.O. Box 1534
Green, Bay Wisconsin 54305-1534
(920) 435-9378

Paul A. Maddock
Thompson Coburn LLP
One US Bank Plaza
St. Louis MO 63101-1693
(314) 552-6000
(314) 552-7000 - facsimile

Attorneys for Thermal Dynamics Corp.



Attorney for ITW and Miller Electric

APPENDIX A

TABLE A

Claim 1

Claim Element	CutMaster™ 38
A welding type power source capable of receiving a range of input voltages and frequencies, comprising:	The CutMaster™ 38 is a plasma cutting source capable of receiving a range of input voltages and "accepts any input power from 100-240 volts," according to Thermal Dynamics' literature.
an input circuit configured to receive an input power signal having an input frequency and an input magnitude and provide a first signal having a magnitude responsive to the input magnitude;	The CutMaster™ 38 includes a bridge rectifier configured to receive an input power signal and to provide a first signal having a magnitude responsive to the input magnitude.
a preregulator configured to receive the first signal and provide a dc second signal having a preregulator magnitude independent of the input magnitude;	The CutMaster™ 38 has a boost circuit which provides a dc second signal. The magnitude of the output of the boost circuit is independent of the input magnitude.
an output circuit configured to receive the dc second signal and provide a welding type output power signal having an output frequency independent of the input frequency independent of the input voltage independent of the input voltage;	The CutMaster™ 38 has an output circuit which receives the boost circuit output and provides a welding type output power signal having an output frequency independent of the input frequency and having an output voltage independent of the input voltage. The CutMaster™ 38 has an inverter, a transformer, an output rectifier, and an output inductor.
a preregulator controller, connected to the preregulator, and further having a controller power input; and	The CutMaster™ 38 has logic and control circuitry which is connected to the preregulator and has a controller power input.
a control power circuit configured to provide the dc second signal and provide a control power signal to the controller power input, wherein the controller power signal has a control power magnitude independent of the input magnitude and a control	Plaintiffs incorporate by reference Plaintiffs' Response to Thermal Dynamics' Interrogatory No. 19 specifically directed at this claim element.

frequency independent of the input frequency, and further wherein the control power circuit has a switch and start-up circuitry, wherein the start-up circuitry includes control circuitry.	43
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Claim 2

Claim Element	CutMaster™ 38
The apparatus of claim 1, wherein the input circuit includes a rectifier.	The CutMaster™ 38 includes a bridge rectifier configured to receive an input power signal and to provide a first signal having a magnitude responsive to the input magnitude.

Claim 3

Claim Element	CutMaster™38
The apparatus of claim 1, wherein the preregulator magnitude is greater than the first magnitude.	In the CutMaster™38, the output of the boost circuit is generally 400V, and Thermal Dynamics has stated that the normal range of ac inputs is 100-240V.

Claim 4

Claim Element	CutMaster™38
The apparatus of claim 3, wherein the preregulator includes a boost converter.	The CutMaster™ 38 has a boost circuit which provides a dc second signal.

Claim 6

Claim Element	CutMaster™38
The apparatus of claim 3, wherein the output circuit includes an inverter.	The CutMaster™ 38 has an output circuit which receives the boost circuit output and provides a welding type output power signal having an output frequency independent of the input frequency and having an output voltage independent of the input voltage. The CutMaster™ 38 has an inverter, a transformer, an output rectifier, and an output inductor.

Claim 8

Claim Element	CutMaster™38
The apparatus of claim 3, wherein the preregulator magnitude is greater than the control power magnitude.	The 400V provided by the boost circuit of the CutMaster™38 is greater than the voltage provided by the "Secondary Power" circuit shown on JR 00917.

TABLE B

Claim 1

Claim Element	CutMaster™ 38
1. A welding, cutting or heating power source, comprising:	The CutMaster™ 38 is a plasma cutting power source.
an input rectifier configured to receive an ac input and to provide a first dc signal;	The CutMaster™ 38 has a bridge rectifier configured to receive an ac input signal and provide a dc signal.
a converter configured to receive the first dc signal and to provide	The CutMaster™ 38 has four transistors that provide a converter

a converter output, and configured to receive at least one control, input;	output and there is logic and control circuitry directly connected to two of them. The logic and control circuitry provide one or more control signals that purposely affect the converter's operation.
an output circuit configured to receive the converter output and to provide a welding, heating or cutting signal; and	The CutMaster™ 38 has two diodes and an output inductor that act to convert the ac signal into a signal suitable for cutting applications.
a controller, including a power factor correction circuit, configured to provide at least one control signal to the converter.	The CutMaster™ 38 has logic and control circuitry of the main PCB assembly that provides control to at least two transistors that provide connector output. The logic and control circuitry of the CutMaster™ 38 includes a Unitrode 3854 power factor correction chip that provides active power factor correction.

Claim 2

Claim Element	CutMaster™ 38
The apparatus of claim 1, further including an auxiliary power source capable of providing a control over signal at a preselected control signal voltage, regardless of the magnitude of the ac input signal.	The CutMaster™ 38 also has a "Bias Converter," an auxiliary power source that provides a pre-selected control voltage signal regardless of the range of the ac input signal.

Claim 4

Claim Element	CutMaster™ 38
The apparatus of claim 1, wherein the converter includes a boost circuit.	The CutMaster™ 38 has a boost converter.

circuit.	
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Claim 5

Claim Element	CutMaster™ 38
The apparatus of claim 1, wherein the output circuit includes a pulse width modulator.	The pulse widths of the gate drives to the transistors of the CutMaster™ 38 vary with load.

Claim 6

Claim Element	CutMaster™ 38
The apparatus of claim 5, wherein the converter includes a boost circuit.	The CutMaster™ 38 has a boost converter.

Claim 7

Claim Element	CutMaster™ 38
The apparatus of claim 1, wherein the output circuit includes an inverter.	The CutMaster™ 38 has an inverter in its output circuit.

Claim 8

Claim Element	CutMaster™ 38
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The apparatus of claim 1 wherein the output circuit includes a rectifier.	The CutMaster™ 38 has two diodes that act as a rectifier.
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Claim 10

Claim Element	CutMaster™ 38
A method of providing a welding, cutting or heating current, comprising:	The CutMaster™ 38 is a plasma cutting power source capable of receiving and providing a current.
boost converting and power factor correcting an ac input signal to a second ac signal; and	The CutMaster™ 38 has logic and control circuitry of the main PCB assembly that provides control to at least two transistors that provide boosted converter output. The logic and control circuitry of the CutMaster™ 38 includes a Unitrode 3854 power factor correction chip that provides active power factor correction.
changing the second ac signal into a third signal having a current suitable for welding, cutting or heating.	The CutMaster™ 38 has primary leads that attach to the main PCB assembly through two connectors and the secondary leads attach to the main PCB assembly through two other connectors. The device provides, for example, 30 amps of ac output current suitable for cutting applications.

Claim 11

Claim Element	CutMaster™ 38
The method of claim 10 further including providing control signals to a converter.	The CutMaster™ 38 has logic and control circuitry that provides control signals to a boost converter.

Claim 13

Claim Element	CutMaster™ 38
The method of claim 10, wherein includes pulse width modulating.	The pulse widths of the gate drives to the transistors of the CutMaster™ 38 vary with load.

Claim 14

Claim Element	CutMaster™ 38
The method of claim 10, wherein changing includes inverting.	The CutMaster™ 38 has an inverter in its output circuit.

Claim 15

Claim Element	CutMaster™ 38
A welding, cutting or heating power source, comprising:	The CutMaster™ 38 is a plasma cutting power source.
rectifier means for receiving an ac input providing a first dc signal;	The CutMaster™ 38 has a bridge rectifier configured to receive an ac input signal and provide a dc signal.
converter means for receiving the first dc signal and providing a converter output;	The CutMaster™ 38 has four transistors that provide a converter output and there is logic and control circuitry directly connected to two of them. The logic and control circuitry provide one or more control signals that purposely affect the converter's operation.
control means for controlling the converter means, wherein the control means includes a power factor correction means for power factor correction, connected to the converter means;	The CutMaster™ 38 has logic and control circuitry of the main PCB assembly that provides control to at least two transistors that provide connector output. The logic and control circuitry of the

factor correction, connected to the converter means;	CutMaster™ 38 includes a Unitrode 3854 power factor correction chip that provides active power factor correction.
output means for receiving the converter output and providing a welding, heating or cutting signal.	The CutMaster™ 38 has two diodes and an output inductor that act to convert the ac signal into a signal suitable for cutting applications.

Claim 16

Claim Element	CutMaster™ 38
The apparatus of claim 15, wherein the converter means includes a boost circuit.	The CutMaster™ 38 has a boost converter.

Claim 17

Claim Element	CutMaster™ 38
The apparatus of claim 16, wherein the output means includes a pulse width modulator.	The pulse widths of the gate drives to the transistors of the CutMaster™ 38 vary with load.

Claim 18

Claim Element	CutMaster™ 38
The apparatus of claim 15, wherein the output circuit includes an inverter.	The CutMaster™ 38 has an inverter in its output circuit.

Claim 19

Claim Element	CutMaster™ 38
The apparatus of claim 15 wherein the output circuit includes a rectifier.	The CutMaster™ 38 has two diodes and an output inductor, that act as a rectifier.

Claim 20

Claim Element	CutMaster™ 38
A welding or cutting power source, comprising: an input rectifier configured to receive an ac input having a magnitude over a range of inputs, wherein the range includes a highest magnitude at least twice a lowest magnitude, and to provide a first dc signal; a boost converter, including a boost inductor connected to receive the first dc signal, wherein the boost converter has a dc bus output; an output circuit configured to receive the dc bus output and to provide a welding or cutting signal; and a controller including a power factor correction circuit, configured to provide at least one control signal to the boost converter.	<p>The CutMaster™ 38 is a plasma cutting power source.</p> <p>The CutMaster™ 38 has a bridge rectifier configured to receive an ac input signal. The CutMaster™ 38 is a plasma cutting source capable of receiving a range of input voltages and "accepts any input power from 100-240 volts," according to Thermal Dynamics' literature.</p> <p>The CutMaster™ 38 has four transistors that provide a converter output and there is logic and control circuitry directly connected to two of them. The boost converter has a dc bus output.</p> <p>The CutMaster™ 38 has an inverter, a transformer, a rectifier and an output inductor. The output circuit receives the dc bus output and provides a signal suitable for cutting applications.</p> <p>The CutMaster™ 38 has logic and control circuitry of the main PCB assembly that provides control to at least two transistors that provide connector output. The logic and control circuitry of the CutMaster™ 38 includes a Unitrode 3854 power factor correction</p>

	chip that provides active power factor correction.
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Claim 21

Claim Element	CutMaster™ 38
The apparatus of claim 20, further including an auxiliary power source capable of providing a control power signal at a preselected control signal voltage for a plurality of magnitudes of the ac input signal.	The CutMaster™ 38 also has a "Bias Converter," an auxiliary power source that provides a preselected control voltage signal regardless of the range of the ac input signal.

Claim 23

Claim Element	CutMaster™ 38
The apparatus of claim 20, wherein the output circuit includes a switched circuit connected across the dc bus, and a transformer having a primary connected in the switched circuit.	The CutMaster™ 38 has a pulse width modulator, the output of which is provided to a transformer.

Claim 24

Claim Element	CutMaster™ 38
The apparatus of claim 23, wherein the switched circuit is a pulse width modulator.	The pulse widths of the gate drives to the transistors of the CutMaster™ 38 vary with load.

Claim 25

Claim Element	CutMaster™ 38
The apparatus of claim 23, wherein the output circuit includes an output rectifier connected to a secondary of the transformer.	The CutMaster™ 38 has an output rectifier that connected to a transformer.

Claim 26

Claim Element	CutMaster™ 38
The apparatus of claim 25, wherein the switched circuit includes an inverter.	The CutMaster™ 38 has a pulse width modulating inverter.

Claim 27

Claim Element	CutMaster™ 38
The apparatus of claim 25 wherein the output circuit includes an inductor connected to the output rectifier.	The CutMaster™ 38 has two diodes and an output inductor that act to convert the ac signal into a signal suitable for cutting applications.

Claim 30

Claim Element	CutMaster™ 38
A welding, cutting or heating power source capable of receiving a range of input voltages, comprising:	The CutMaster™ 38 is a plasma cutting source capable of receiving a range of input voltages and "accepts any input power from 100-240 volts," according to Thermal Dynamics' literature.

	from 100-240 volts," according to Thermal Dynamics' literature.
an input rectifier configured to receive an ac input, wherein the range includes a highest magnitude and a lowest magnitude, and wherein the highest magnitude is at least twice the lowest magnitude, and wherein the rectifier is configured to provide a first dc signal;	The CutMaster™ 38 has a bridge rectifier configured to receive an ac input signal. The CutMaster™ 38 is a plasma cutting source capable of receiving a range of input voltages and "accepts any input power from 100-240 volts," according to Thermal Dynamics' literature.
a boost converter connected to receive the first dc signal and provide a second dc output across positive bus and a negative bus, wherein the boost converter is configured to receive at least one control input, and wherein the boost converter includes a boost inductor having a first end in electrical communication with the rectifier, and the boost inductor has a second end in electrical communication with a switch, wherein when the switch is closed the second end is in electrical communication with negative bus, and wherein the second end is in electrical communication with a diode, and the diode is further in electrical communicating with the positive bus, such that current can flow from the second end through the diode to the positive bus;	The CutMaster™ 38 has a boost converter that receives a first dc signal and provides a second dc output. Thermal Dynamics' literature lists a "PFC Inductor" as a component of the boost converter. The inductor has a first end in electrical communication with the input rectifier and a second end in electrical communication with a switch.
a switched circuit, connected to receive the dc bus;	The CutMaster™ 38 has a pulse width modulating inverter that receives the dc bus signal.
an output transformer, having a primary connected to receive a second ac signal from the switched circuit and to provide a third ac signal having a current suitable for welding or cutting on a secondary;	The CutMaster™ 38 has a transformer that receives the output of the pulse width modulating inverter and provides an ac signal having a current suitable for cutting applications.
an output rectifier connected to the secondary, that provides a third dc signal;	The CutMaster™ 38 has an output rectifier that provides a third dc signal.

<p>a controller, including a power factor correction circuit, configured to provide at least one control signal to the converter; and</p>	<p>The CutMaster™ 38 has logic and control circuitry of the main PCB assembly that provides control to at least two transistors that provide connector output. The logic and control circuitry of the CutMaster™ 38 includes a Unitrode 3854 power factor correction chip that provides active power factor correction.</p>
<p>an auxiliary power source capable of providing a control power signal at a preselected control signal voltage, for a plurality of input voltages.</p>	<p>The CutMaster™ 38 also has a "Bias Converter," an auxiliary power source that provides a preselected control voltage signal regardless of the range of the ac input signal.</p>